

- 1 1. A wireless audio transmission and reception system comprising"
2 a first encoder to receive an analog signal, to digitize said analog
3 signal, and to compress the digitized analog signal using MP-3
4 compression;
5 a modulator in communication with the first encoder to receive the
6 compressed digitized analog signal and to modulate a carrier
7 frequency with the compressed digitized analog signal;
8 a transmitter in communication with the modulated carrier signal to
9 transfer the modulated carrier signal wirelessly;
10 a receiver to receive the modulated carrier signal;
11 a demodulator in communication with the receiver to extract the
12 compressed digitized analog signal from the modulated carrier
13 signal; and
14 a first decoder in communication with the demodulator to
15 decompress the compressed digitized analog signal using MP-3
16 decompression and to convert said digitized analog signal to a
17 reproduction of the analog signal.

- 1 2. The system of claim 1 further comprising a frame formatter in
2 communication between the first encoder and the modulator to divide the
3 compressed digitized analog signal into packets, placing synchronization
4 patterns at a beginning of each packet, assembling a number of packets
5 into a frame; and placing an end-of-frame pattern at an end of said frame.

- 1 3. The system of claim 2 further comprising a bit-stuffing circuit in
2 communication between the frame formatter and the modulator to insert
3 bits into any frame having insufficient transitions, whereby said insufficient
4 transitions cause errors in receiving the compressed digitized analog
5 signal.

- 1 4. The system of claim 3 further comprising a second encoder to encode the
2 frames of the compressed digitized analog signal to a non-return-to-zero
3 invert-on-zeros (NRZI) coding.

- 1 5. The system of claim 1 further comprising a second decoder placed in
2 communication between the demodulator and the first decoder to restore
3 a NRZI encoded, compressed digitized analog signal to the compressed
4 digitized analog signal.

- 1 6. The system of claim 5 further comprising a bit-extractor circuit in
2 communication between the second decoder and the first decoder to
3 remove bits inserted into the compressed digitized analog signal to restore
4 original transitions of the compressed digitized analog signal.

- 1 7. The system of claim 1 further comprising a frame remover in
- 2 communication between the demodulator and the first decoder to remove
- 3 synchronization patterns from a beginning of each packet of the
- 4 compressed digitized analog signals and end-of-frame patterns from an
- 5 end of each frame of packets of the compressed digitized analog signals.
- 1 8. The system of claim 1 wherein the carrier frequency is at least 900 MHz.
- 1 9. The system of claim 1 wherein a compression ratio of the digitized analog
- 2 signal to the compressed digitized analog signal is from approximately 8:1
- 3 to approximately 96:1 and is determined by a quality of audio reproduction
- 4 of the analog signal
- 1 10. A wireless audio transmitter system comprising"
 - 2 a first encoder to receive an analog signal, to digitize said analog
 - 3 signal, and to compress the digitized analog signal using MP-3
 - 4 compression;
 - 5 a modulator in communication with the first encoder to receive the
 - 6 compressed digitized analog signal and to modulate a carrier
 - 7 frequency with the compressed digitized analog signal; and
 - 8 a transmitter in communication with the modulated carrier signal to
 - 9 transfer the modulated carrier signal wirelessly.

- 1 11. The system of claim 10 further comprising a frame formatter in
- 2 communication between the first encoder and the modulator to divide the
- 3 compressed digitized analog signal into packets, placing synchronization
- 4 patterns at a beginning of each packet, assembling a number of the
- 5 packets to form a frame and placing an end-of-frame pattern at an end of
- 6 said frame.
- 1 12. The system of claim 11 further comprising a bit-stuffing circuit in
- 2 communication between the frame formatter and the modulator to insert
- 3 bits into any frame having insufficient transitions, whereby said insufficient
- 4 transitions cause errors in receiving the compressed digitized analog
- 5 signal.
- 1 13. The system of claim 12 further comprising a second encoder to encode
- 2 the frames of the compressed digitized analog signal to a non-return-to-
- 3 zero invert-on-zeros (NRZI) coding.
- 1 14. The system of claim 10 wherein the carrier frequency is at least 900 MHz.
- 1 15. The system of claim 10 wherein a compression ratio of the digitized
- 2 analog signal to the compressed digitized analog signal is from
- 3 approximately 8:1 to approximately 96:1 and is determined by a quality of
- 4 audio reproduction of the analog signal
- 5 16. A wireless audio receiver system comprising"

- 6 a receiver to receive a modulated carrier signal;
- 7 a demodulator in communication with the receiver to extract a
- 8 compressed digitized analog signal from the modulated carrier
- 9 signal;
- 10 a first decoder in communication with the demodulator to
- 11 decompress the compressed digitized analog signal using MP-3
- 12 decompression and to convert said digitized analog signal to a
- 13 reproduction of an analog signal.
- 1 17. The system of claim 16 further comprising a second decoder placed in
- 2 communication between the demodulator and the first decoder to restore
- 3 a NRZI encoded, compressed digitized analog signal to the compressed
- 4 digitized analog signal.
- 1 18. The system of claim 17 further comprising a bit-extractor circuit in
- 2 communication between the second decoder and the first decoder to
- 3 remove bits inserted into the compressed digitized analog signal to restore
- 4 original transitions of the compressed digitized analog signal.
- 1 19. The system of claim 16 further comprising a frame remover in
- 2 communication between the demodulator and the first decoder to remove
- 3 synchronization patterns from a beginning of each packet of the
- 4 compressed digitized analog signals and end-of-frame patterns from an
- 5 end of a frame of packets of the compressed digitized analog signals.

- 1 20. The system of claim 16 wherein the carrier frequency is at least 900 MHz.
- 1 21. The system of claim 16 wherein a compression ratio of the digitized
2 analog signal to the compressed digitized analog signal is from
3 approximately 8:1 to approximately 96:1 and is determined by a desired
4 quality of audio reproduction of the analog signal.
- 1 22. A method for wireless transmission of an analog signal comprising the
2 steps of:
 - 3 acquiring the analog signal;
 - 4 digitizing said analog signal;
 - 5 compressing the digitized analog signal according to an MP-3
6 encoding algorithm;
 - 7 modulating a carrier signal with the compressed digitized analog
8 signal; and
 - 9 transmitting said modulated carrier signal;
 - 10 receiving said modulated carrier signal;
 - 11 demodulating said modulated carrier signal to extract the
12 compressed digitized analog signal;

13 decompressing the compressed digitized analog signal according
14 to an MP-3 decoding algorithm; and
15 converting the digitized analog signal to a reproduced analog
16 signal.

1 23. The method of claim 22 further comprising the step of forming frames of
2 the compressed digitized analog signal by the steps of:

3 assembling a plurality of bytes of the compressed digitized analog
4 signal to create packets
5 placing a synchronization pattern at a beginning of each packet;
6 assembling a plurality of said packets to form frames; and
7 placing an end-of-frame pattern at an end of each frame.

1 24. The method of claim 23 further comprising the step of:

2 inserting additional bits within any frame having insufficient
3 transitions, whereby said insufficient transitions cause errors in
4 receiving the compressed digitized analog signal.

1 25. The method of claim 27 further comprising the step of:

2 encoding the compressed digitized analog signal to an NRZI
3 format.

- 1 26. The method of claim 22 further comprising the step of:
 - 2 decoding an NRZI encoded, compressed, and digitized analog
 - 3 signal to restore the compressed digitized analog signal.
- 1 27. The method of claim 22 further comprising the step of:
 - 2 extracting bits inserted to the compressed digitized analog signal to
 - 3 restore original transitions of the compressed digitized analog
 - 4 signal.
- 1 28. The method of claim 22 further comprising the step of:
 - 2 removing frames from the compressed digitized analog signal by
 - 3 removing synchronization patterns from a beginning of each
 - 4 packet; and
 - 5 removing an end-of-frame pattern from each from an end of
 - 6 each frame.
- 1 29. The method of claim 22 wherein the carrier signal is at least 900 MHz.
- 1 30. The method of claim 22 wherein a compression ratio of the digitized
- 2 analog signal to the compressed digitized analog signal is from
- 3 approximately 8:1 to approximately 96:1 and is determined by a desired
- 4 quality of audio reproduction of the analog signal.